

What Is Claimed Is:

1. A power allocation method for providing a packet data service in a mobile communication system having a base transceiver station for performing wireless communication with at least one mobile station and a base station controller for controlling the base transceiver station, the method comprising the steps of:

(a) checking whether or not packet data traffic is generated;

(b) if it is checked and the packet data traffic is generated in the step (a), checking whether or not there is the mobile station making use of a line service where a current call is in progress;

(c) if it is checked and there is the mobile station making use of the line service where the current call is in progress, checking whether or not there is the mobile station making use of the packet data service where the call is currently in progress; and

(d) if it is checked and there is no mobile station making use of the packet data service where the current call is in progress, gradually increasing power transmitted to the mobile station making use of the packet data service to perform power control.

2. The power allocation method as claimed in claim 1, wherein the packet data traffic in the step (a) is generated when the mobile station performs packet data communication including at least one of a wireless application protocol (WAP), a file transfer protocol (FTP) and a hypertext transfer protocol (HTTP).

3. The power allocation method as claimed in claim 1, further comprising the step of, if it is checked that there is no mobile station making use of the line service where the current call is in progress in the step (b), allocating current whole power to the mobile station making use of the packet data service.

4. The power allocation method as claimed in claim 1, further comprising the

step of, if it is checked and there is the mobile station making use of the packet data service where the current call is in progress in the step (c), allocating current whole power to the mobile station making use of the packet data service.

5 5. The power allocation method as claimed in claim 3, wherein the step of allocating the power to the mobile station making use of the packet data service allocates current remaining power to the mobile station making use of the packet data service at once.

10 6. The power allocation method as claimed in claim 4, wherein the step of allocating the power to the mobile station making use of the packet data service allocates current remaining power to the mobile station making use of the packet data service at once.

15 7. The power allocation method as claimed in claim 1, wherein the step (d) performs power allocation in a way that the power transmitted to the mobile station making use of the packet data service is gradually increased at a preset period of time for a preset predetermined time.

20 8. The power allocation method as claimed in claim 7, wherein the preset period of time is 1.25 msec.

 9. The power allocation method as claimed in claim 7, wherein the power allocation gradually increases the power transmitted to the mobile station making use of
25 the packet data service by a same preset power magnitude at each preset period of time.

 10. The power allocation method as claimed in claim 7, wherein the power allocation controls the power transmitted to the mobile station making use of the packet

data service to be gradually increased at each preset period of time in a way that an increasing width of each step is gradually decreased as the period of time proceeds.

11. The power allocation method as claimed in claim 9, wherein the gradually
5 increasing power is increased up to a peak power which can be currently transmitted.

12. The power allocation method as claimed in claim 10, wherein the gradually increasing power is increased up to a peak power which can be currently transmitted.

10 13. The power allocation method as claimed in claim 7, wherein the preset predetermined time is a time which it takes a signal-to-interference ratio of the mobile station to be restored to an original value thereof when the power allocated to the mobile station making use of the line service is changed.

15 14. A power allocation method for providing a packet data service in a mobile communication system having a base transceiver station for performing wireless communication with at least one mobile station and a base station controller for controlling the base transceiver station, the method comprising the steps of:

(a) checking whether or not packet data traffic is generated;
20 (b) if it is checked and the packet data traffic is generated in the step (a), checking whether or not there is the mobile station making use of a line service where a current call is in progress;

(c) if it is checked and there is the mobile station making use of the line service where the current call is in progress, checking whether or not there is the mobile station
25 making use of the packet data service where the call is currently in progress; and

(d) if it is checked and there is no mobile station making use of the packet data service where the current call is in progress, gradually increasing power transmitted to the mobile station making use of the packet data service by a same preset power

magnitude at each preset period of time for a preset predetermined time.

15. The power allocation method as claimed in claim 14, wherein the packet data traffic in the step (a) is generated when the mobile station performs packet data communication including at least one of a wireless application protocol (WAP), a file transfer protocol (FTP) and a hypertext transfer protocol (HTTP).

16. The power allocation method as claimed in claim 14, further comprising the step of, if it is checked and there is no mobile station making use of the line service where the current call is in progress in the step (b), allocating current whole power to the mobile station making use of the packet data service.

17. The power allocation method as claimed in claim 14, further comprising the step of, if it is checked and there is the mobile station making use of the packet data service where the current call is in progress in the step (c), allocating current whole power to the mobile station making use of the packet data service.

18. The power allocation method as claimed in claim 16, wherein the step of allocating the power to the mobile station making use of the packet data service allocates current remaining power to the mobile station making use of the packet data service at once.

19. The power allocation method as claimed in claim 17, wherein the step of allocating the power to the mobile station making use of the packet data service allocates current remaining power to the mobile station making use of the packet data service at once.

20. The power allocation method as claimed in claim 14, wherein the preset

period of time is 1.25 msec.

21. The power allocation method as claimed in claim 14, wherein the gradually increasing power is increased up to a peak power which can be currently transmitted.

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22. The power allocation method as claimed in claim 14, wherein the preset predetermined time is a time which it takes a signal-to-interference ratio of the mobile station to be restored to an original value thereof when the power allocated to the mobile station making use of the line service is changed.

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23. A power allocation method for providing a packet data service in a mobile communication system having a base transceiver station for performing wireless communication with at least one mobile station and a base station controller for controlling the base transceiver station, the method comprising the steps of:

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(a) checking whether or not packet data traffic is generated;

(b) if it is checked and the packet data traffic is generated in the step (a), checking whether or not there is the mobile station making use of a line service where a current call is in progress;

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(c) if it is checked and there is the mobile station making use of the line service where the current call is in progress, checking whether or not there is the mobile station making use of the packet data service where the call is currently in progress; and

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(d) if it is checked and there is no mobile station making use of the packet data service where the current call is in progress, controlling power transmitted to the mobile station making use of the packet data service to be gradually increased at each preset period of time for a preset predetermined time in a way that an increasing width of each step is gradually decreased as the period of time proceeds.

24. The power allocation method as claimed in claim 23, wherein the packet

data traffic in the step (a) is generated when the mobile station performs packet data communication including at least one of a wireless application protocol (WAP), a file transfer protocol (FTP) and a hypertext transfer protocol (HTTP).

5 25. The power allocation method as claimed in claim 23, further comprising the step of, if it is checked and there is no mobile station making use of the line service where the current call is in progress in the step (b), allocating current whole power to the mobile station making use of the packet data service.

10 26. The power allocation method as claimed in claim 23, further comprising the step of, if it is checked and there is the mobile station making use of the packet data service where the current call is in progress in the step (c), allocating current whole power to the mobile station making use of the packet data service.

15 27. The power allocation method as claimed in claim 25, wherein the step of allocating the power to the mobile station making use of the packet data service allocates current remaining power to the mobile station making use of the packet data service at once.

20 28. The power allocation method as claimed in claim 26, wherein the step of allocating the power to the mobile station making use of the packet data service allocates current remaining power to the mobile station making use of the packet data service at once.

25 29. The power allocation method as claimed in claim 23, wherein the preset period of time is 1.25 msec.

30. The power allocation method as claimed in claim 23, wherein the gradually

increasing power is increased up to a peak power which can be currently transmitted.

31. The power allocation method as claimed in claim 23, wherein the preset
predetermined time is a time which it takes a signal-to-interference ratio of the mobile
station to be restored to an original value thereof when the power allocated to the
mobile station making use of the line service is changed.

32. The power allocation method as claimed in claim 23, wherein the step (d)
gradually decreases an increasing width at each preset period of time so as for the power
transmitted to the mobile station making use of the packet data service to increase in
exponential proportion for the preset predetermined time.

33. A power allocation apparatus for providing a packet data service in a mobile
communication system over a mobile communication network having a base transceiver
station for performing wireless communication with at least one mobile station, and a
base station controller connected to a mobile switching center and for controlling the
base transceiver station, the power allocation apparatus comprising:

the base transceiver station including an antenna for performing wireless
communication with the mobile station; a transmission section for performing wireless
transmission by means of the antenna; a reception section for performing wireless
reception by means of the antenna; a data reception section for receiving data to be
transmitted from the mobile communication network to the mobile station; a data
processing section for processing the data received through the data reception section in
accordance with a predetermined algorithm; a modulation section for modulating the
data processed by the data processing section; and a power section for supplying/driving
power to allow the data modulated by the modulation section to be transmitted through
the antenna; and

a control section for checking whether or not there is the mobile station making

use of the packet data service, and according to the checked result, controlling the power section to gradually regulate the power transmitted to the mobile station making use of the packet data service.

5 34. The power allocation apparatus as claimed in claim 33, wherein the control section is provided to the base transceiver station.

35. The power allocation apparatus as claimed in claim 33, wherein the control section is provided to the base station controller.

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36. The power allocation apparatus as claimed in claim 33, wherein the control section comprises:

a packet scheduler for receiving data transmitted from the mobile communication network to perform packet scheduling;

15 a channel estimator for estimating channels according to signals received through the reception section;

a channel allocator for allocating communication channels;

a power allocator for controlling the power section to allocate transmission power; and

20 a coding and modulating selector for performing coding and modulating of the data.

37. The power allocation apparatus as claimed in claim 36, wherein the control section controls the power section to gradually increase the power transmitted to the mobile station making use of the packet data service, in the case where packet data traffic is generated for the first time during performing initial power control, where there is the mobile station making use of a line service where a current call is in progress, and where there is no mobile station making use of the packet data service

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where the current call is in progress.

38. The power allocation apparatus as claimed in claim 37, wherein the control section controls the power section to allocate current whole power to the mobile station making use of the packet data service, in the case where there is no mobile station making use of the line service where the current call is in progress when the packet data traffic is generated for the first time.

39. The power allocation apparatus as claimed in claim 37, wherein the control section controls the power section to allocate current whole power to the mobile station making use of the packet data service, in the case where there is the mobile station making use of the packet data service where the current call is in progress when the packet data traffic is generated for the first time.

40. The power allocation apparatus as claimed in claim 38, wherein the control section controls the power section to allocate current remaining power to the mobile station making use of the packet data service at once, in order to allocate the power to the mobile station making use of the packet data service.

41. The power allocation apparatus as claimed in claim 39, wherein the control section controls the power section to allocate current remaining power to the mobile station making use of the packet data service at once, in order to allocate the power to the mobile station making use of the packet data service.

42. The power allocation apparatus as claimed in claim 37, wherein the control section controls the power section to gradually increase the power transmitted to the mobile station making use of the packet data service at a preset period of time for a preset predetermined time.

43. The power allocation apparatus as claimed in claim 42, wherein the control section controls the power section by setting the preset period of time to 1.25 msec.

5 44. The power allocation apparatus as claimed in claim 42, wherein the control section controls the power section to gradually increase the power transmitted to the mobile station making use of the packet data service by a preset power magnitude at each preset period of time.

10 45. The power allocation apparatus as claimed in claim 42, wherein the control section controls the power section to gradually increase the power transmitted to the mobile station making use of the packet data service at each preset period of time in a way that an increasing width of each step is gradually decreased as the preset period of time proceeds.

15 46. The power allocation apparatus as claimed in claim 45, wherein the control section controls the power section to cause the increasing width to be gradually decreased as the preset period of time proceeds so as for the power transmitted to the mobile station making use of the packet data service to increase in exponential
20 proportion.

 47. The power allocation apparatus as claimed in claim 42, wherein the control section controls the power section to cause the gradually increasing power to be increased up to a peak power which can be currently transmitted.

25 48. The power allocation apparatus as claimed in claim 42, wherein the control section controls the power section using the preset predetermined time as a time which it takes a signal-to-interference ratio of the mobile station to be restored to an original

value thereof when the power allocated to the mobile station making use of the line service is changed.